CENTRAL VALLEY FLOOD MANAGEMENT PLANNING PROGRAM

FloodSAFE CALIFORNIA

Central Valley Flood Protection Plan

Round 1 Management Action Workshops
Draft Initial Management Actions

A management action is a specific structural or nonstructural strategy, action, or tactic that contributes to the Central Valley Flood Protection Plan (CVFPP) goals and addresses identified flood management problems in the Systemwide Planning Area, including any identified deficiencies in the State Plan of Flood Control (refer to *CVFPP Interim Progress Summary No.1*). Management actions may range from potential policy or institutional changes, to recommendations for operational and physical changes to the flood management system. Management actions may address one or more CVFPP goals and are the "building blocks" for regional solutions and eventually systemwide solutions.

An initial set of management actions was developed by consolidating a large number of compiled actions and recommendations from published studies and reports, and input from Regional Conditions and Topic Work Groups during CVFPP Phase 1 activities. DWR subject-matter experts provided a preliminary evaluation of the environmental, economic, technical, and social consideration of the identified management actions. Each management action was evaluated against a uniform set of criteria to allow for a consistent comparative analysis.

Management Actions Workshops will refine the initial management actions and develop additional actions to augment this initial set of management actions. For information on Phase 2 Workshops, refer to *Attendee's Guide to Phase 2 Workshops* available at www.water.ca.gov/cvfmp/.

Each management action is evaluated using the *Management Actions Evaluation Form*. For description of the form sections refer to the *Reader's Guide to the Management Actions Evaluation Form* available at www.water.ca.gov/cvfmp/.

To provide detailed written comments on the management action description and evaluation, use the fillable PDF *Comments Form* available at www.water.ca.gov/cvfmp/.

Draft Floodplain Management Actions

ID	Management Actions Title
MA-025	Acquire floodplain property that can contribute to flood management system efficiency.
MA-026	Manage municipal stormwater to provide regional or systemwide flood benefits.
MA-028	Coordinate and streamline floodplain mapping to improve consistency of floodplain delineation and assessment of flood risk.
MA-074	Increase flood risk awareness through outreach.
MA-075	Provide technical assistance to local agencies for compliance and grant application assistance.
MA-076	Assist in development of local flood management plan updates.
MA-077	Improve awareness of Community Rating System insurance-rate adjusting program.
MA-078	Develop mandatory flood insurance programs that are consistent with the risk of flooding.
MA-079	Increase public understanding of FEMA maps and policies.
MA-080	Eliminate subsidies for structures that are repetitively damaged.

DRAFT Management Action Evaluation

Management Action Title: MA-025

Acquire floodplain property that can contribute to flood management system efficiency.

Description:

Problem:

Much of the flood system has isolated floodplains from river and stream channels. Natural floodplains have been reduced due to limited understanding of their benefits, including their natural capacity for flood storage and conveyance. This has led to constrictions to flow that create flood hazards, present maintenance problems, and to loss of ecosystem quality and function. The constricted flow paths require that reservoirs hold flood flows and restrict and/or meter flows more often to control peak flows.

Desired Outcome:

Acquire or otherwise dedicate floodplain land that is now not subject to flooding to the flood management system in sufficient amounts and at appropriate locations so that the increased floodplain transient storage lowers flood peaks, restores river processes, enhances ecosystem value, and contributes to water supply management.

Methodology:

Lands adjacent to channels that currently or historically were flooded during periods of high flow would be inundated more frequently, at greater depths, or for longer periods of time during winter and spring. This would be achieved by reconnecting historical floodplains to channels using setback levees or by increasing the frequency with which existing connected floodplains are inundated by water that tops the bank. However, advantages of increasing floodplains must be balanced against the impact to existing land uses and critical infrastructure in floodplains. Acquisition of some property, whether land or structures, would occur as necessary to ensure the effectiveness of the flood management system. Plans would be developed to adequately replace lost property, revenue and uses of acquired lands and services. Relocating structures would be considered in high hazard areas where human occupancy is unsafe (e.g., where flooding occurs very rapidly) and where on-site flood proofing measures are inadequate (e.g., in areas where floodwaters are extremely deep). The use of voluntary flood easements would be explored, where feasible, to accommodate flood waters, preserve agricultural land, and provide habitat.

CVFPP Goals

Contributes Significantly to: Improve Flood Risk Management

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☑ Improve Operation and Maintenance
- ☑ Promote Ecosystem Functions
- ☐ Improve Institutional Support
- ☑ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retained, but requires further evaluation.

Advantages:

- Reduces both flood and residual risk.
- Reduces long-term emergency response and floodfighting costs.
- Increase public safety.
- Water supply improvement; ecosystem improvement.

Disadvantages:

- Potentially high capital cost.
- Potential terrestrial environmental impacts in floodplain inundation area.
- Potential public resistance due to high costs and relocations.
- Potential reduction in tax revenue.

Economic Considerations:

Capital Cost? (High, Medium, Low)

High initial investment depending on location and extent of floodplain acquisition (costs include real estate acquisitions,

relocations, mitigation costs, and levee construction costs). Long-term disaster cost avoidance may offset the costs.

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

Could increase costs for floodplain maintenance.

Potential for Cost-Sharing?

Potential for Federal cost sharing via contributions to existing Federal project purposes (flood management). Also potential for State and local cost sharing.

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Potential to reduce long-term costs for emergency response and recovery through reduction in the frequency or magnitude of flooding outside the floodway and relocation of people and property. Could reduce emergency costs associated with levee repairs and failures because depth and velocity on levees would be diminished.

Flood fighting? (Increase, Decrease, or No Significant Change)

Potential to reduce the long-term cost of flood fighting due to decreased floodwaters and decreased populations in the floodplain.

Effect on Damage to Critical Public Infrastructure?

Potential to reduce damage to critical infrastructure due to lower velocity and reduced flood stage.

Effect on Floodplain and Economic Development?

Floodplain development could be discouraged in order to maintain the natural processes of the floodplain. This may lead to decreased tax revenue. Potential to improve water-supply reliability, which could support economic development.

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

Potential to reduce State liability through reduction in the frequency or magnitude of flooding and relocation of people and property.

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

Could rehabilitate key physical processes (e.g., sediment transport balance and meander migration) and ecosystem functions by enhancing groundwater recharge, floodplain and channel forming processes, and water quality, and could enhance floodplain spawning habitat and salmonid rearing habitat, and rehabilitate floodplain riparian and wetland habitat.

Adverse Environmental Impact?

Moderate to substantial permanent impacts to terrestrial, agricultural, and potentially to seasonal or freshwater marsh wetland habitats, including potential loss of habitat for special-status species.

Permitting Considerations?

Minor

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

Habitats that have been affected by flood system O&M would be rehabilitated.

Social Considerations:

Public Safety?

Potential to increase public safety through reduction in the frequency or magnitude of flooding and relocation of people and property.

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

Potential to create open space, recreation areas (trails, hunting, wildlife viewing), and natural habitats.

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

Large scale acquisition of floodplains is most likely not implementable due to cost and land availability. However, floodplain acquisition in smaller specific areas may be more feasible. Likelihood of implementability could increase if local communities are educated on the benefits of floodplains and contribute to land acquisition process (e.g., non-fee acquisitions and dedications).

Technical Considerations:

Redirected Hydraulic Impacts?

Potential reduction in downstream peak flows.

Residual Risk?

Reduces the frequency of flooding, and relocated people and property, reducing residual risk.

Climate Change Adaptability:

This action would enhance hydrologic adaptability by increasing water management flexibility. Reservoir capacity previously dedicated to controlling flood flows could instead be dedicated to water supply. Biological adaptibility could be enhanced by improving habitat connectivity and increasing habitat quantity to sustain population viability.

Urban, Small Community, and Non-Urban Considerations:

Region specific. Potential for reduction in tax revenues.

Regional Applicability:

Applicable in all regions with levees.

Integration with Other Programs:

Flood Corridors Program (Projects Office), Corridor Management Strategy (FMO), Central Valley Conservation Strategy (FESSRO)

References:

Flood Warning: Responding to California's Flood Crisis.;RCR; Environmental Sustainability Summary; USACE 2001 Sacramento and San Joaquin River Basins Comprehensive Study;

DRAFT Management Action Evaluation

Management Action Title: MA-026

Manage municipal stormwater to provide regional or systemwide flood benefits.

Description:

Problem:

Municipal storm flows exhibit accelerated runoff and higher peak flows than an undisturbed landscape. These characteristics create more scour, higher stages, more dangerous channel velocities, and generally more destructive flows, and they occur over a shorter period of time than flows from an undisturbed watershed. Both locally in individual catchments, and collectively across regions or basins, this shift in runoff can increase the risk of flood damage to property and the ecosystem.

Desired Outcome:

Develop municipal stormwater improvements to improve flood management while also providing other benefits, such as ecosystem functions.

Methodology:

CVFPP Goals

Contributes Significantly to: Improve Flood Risk Management

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☐ Improve Operation and Maintenance
- ☐ Promote Ecosystem Functions
- ☐ Improve Institutional Support
- ☑ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retained, but requires further evaluation.

Advantages:

- Potential to provide multiple benefits (e.g., recharge, water quality, habitat, local flood improvements, economic, cultural, social, aesthetic) with local, regional and statewide implications.

Disadvantages:

- Systemwide benefits uncertain.
- Moderate to high costs if implemented on large scale.
- Under jurisdiction of local municipalities; large-scale implementation may require new policies or incentives (e.g., funding) at regional or state level.

Economic Considerations:

Capital Cost? (High, Medium, Low)

Low to moderate capital costs to implement on large scale, depending on methods employed

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

Potential for Cost-Sharing?

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Flood fighting? (Increase, Decrease, or No Significant Change)

Effect on Damage to Critical Public Infrastructure?

Potential to reduce damage to critical public infrastructure through reduction in frequency or magnitude of local flooding, primarily in urban areas and small communities

Effect on Floodplain and Economic Development?

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

No change to State flood responsibility

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

Adverse Environmental Impact?

Permitting Considerations?

Yes

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

Social Considerations:

Public Safety?

Potential to increase public safety through reduction in the frequency or magnitude of localized flooding

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

Potential for improvement of water quality, aquatic species migration and breeding, and water supply; may also support restoration of certain habitat types. Recreation, property value, openspace benefits may benefit local economy

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

Stormwater management falls under local, municipal, and state jurisdictions; large-scale implementation (to provide systemwide flood benefits) would require coordination by a large number of local, municpalities, and state agencies, which would likely require changes to stormwater policies at a regional (Cities/Counties/Integrated Water Organizations), state (Water Boards), and federal (USEPA) level

Technical Considerations:

Redirected Hydraulic Impacts?

Stormwater programs will potentially alleviate adverse hydraulic impacts down stream

Residual Risk?

Climate Change Adaptability:

Coordinating stormwater management with flood operations has potential to enhance hydrologic adaptability at a local level; hydrologic alterations could enhance biological adaptability by reducing the adverse consequences of peak flows for habitats, and possibly by increasing the quantity and connectivity or continuity of habitat along environmental gradients

Urban, Small Community, and Non-Urban Considerations:

Location specific (cannot determine at this time)

ID #: MA-026

Regional Applicability:

Applicable in all regions where stormwater contributes to flood flows, or regions where recharge facilities exist

Integration with Other Programs:

References:

USACE 2001 Sacramento and San Joaquin River Basins Comprehensive Study; Boyle & Associates, 2008. Madera County Integrated Regional Water Management Plan;

DRAFT Management Action Evaluation

Management Action Title: MA-028

Coordinate and streamline floodplain mapping to improve consistency of floodplain delineation and assessment of flood risk.

Description:

Problem:

Floodplain boundaries provided by USACE, FEMA, and DWR are often different from each other due to variation in the available data and levee design criteria used. Inconsistencies between the floodplain boundaries of multiple agencies can cause public confusion regarding flood risk. Good floodplain mapping and related flood hazard data serve a crucial role in identifying properties prone to high flood risk. Local communities, State government, and the private sector require accurate, detailed maps to guide development, prepare plans for community economic growth and infrastructure, utilize the natural and beneficial function of floodplains, and protect private and public investments.

Desired Outcome:

Improve the accuracy of floodplain maps to allow for proper flood planning, maintenance, and emergency response.

Methodology:

OES would coordinate with other hazard mapping efforts to create, develop, produce, and disseminate GIS-based multi-hazard advisory maps and distribute them to local governments and the public. Such maps would pre-plan response options to foreseeable breach scenarios, or typical levee problem scenarios, which would expedite response at the time of the flood. This effort would involve the development of a comprehensive, unified floodplain-mapping program that would resolve discrepancies among current floodplain mapping boundaries. The program would develop a single, unified set of floodplain mapping standards for scale, accuracy, source data, and methodology to ensure consistent floodplain delineation and assessment of flood frequency and risk.

CVFPP Goals

Contributes Significantly to: Improve Flood Risk Management

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☐ Improve Operation and Maintenance
- ☐ Promote Ecosystem Functions
- ☑ Improve Institutional Support
- ☐ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retained.

Advantages:

- Increases flood preparedness and awareness.
- Low cost.
- Discourages floodplain development.
- Consistent floodplain information will be available from all agencies.

Disadvantages:

- Need to standardize mapping criteria.
- Requires muliti-agency cooperation.

Economic Considerations:

Capital Cost? (High, Medium, Low)

Relatively low capital cost to implement. Requires consensus on standards and database population.

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

Little or no change; database will need regular updates.

Potential for Cost-Sharing?

Cost-sharing is not necessary because little or no cost is associated with this management action.

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Potential to reduce emergency resonse and recovery costs, due to increased flood preparadness and awareness.

Flood fighting? (Increase, Decrease, or No Significant Change)

No change to flood fighting costs.

Effect on Damage to Critical Public Infrastructure?

Potential to reduce damage to critical public infrastructure, due to increased flood preparadness and awareness.

Effect on Floodplain and Economic Development?

Floodplain development may be discouraged with increased awareness about what areas are particularly susceptible to increased flooding due to development.

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

Potential to reduce State liability through increased flood preparadness and awareness.

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

None

Adverse Environmental Impact?

None

Permitting Considerations?

None

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

None

Social Considerations:

Public Safety?

Potential to increase public safety through increased flood preparadness and awareness.

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

Potential to discourage activities that complicate flood management, such as development in floodplains.

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

Feasible and likely implementable.

Technical Considerations:

Redirected Hydraulic Impacts?

Potential to prevent increases in downstream flow if development is discouraged.

Residual Risk?

Potential to prevent increases in residual risk if development is discouraged.

Climate Change Adaptability:

This action is unrelated to hydrologic and biological adaptability.

Urban, Small Community, and Non-Urban Considerations:

Region specific (cannot determine at this time).

Regional Applicability:

Applicable in all regions where floodplain mapping is conducted.

Integration with Other Programs:

Central Valley flood Evaluation and Delineation (LRFMO), Best Available Maps (LRFMO), Levee Flood Protection Zone Maps (LRFMO), Map Modernization Program (FEMA), Awareness Floodplain Mapping Program (LRFMO),

References:

RCR; California Floodplain Mangement Task Force, 2002, Final Reccomendations Report; USACE 2001Sacramento and San Joaquin River Basins Comprehensive Study;

DRAFT Management Action Evaluation

Management Action Title: MA-074

Increase flood risk awareness through outreach.

Description:

Problem:

Among the public there is a general lack of understanding of flood risk because of limited access to information, a false sense of security and an undefined responsibility for education. Many property owners assume that if they are outside of the 100-year floodplain they are safe. Some also wrongfully assume that 100-year-certified levees will protect them against any level of flooding. State, federal, and local flood control agencies have struggled to educate the public with a comprehensive and consistent message on flood management. Governments and flood control managers are generally more adept at operating and maintaining flood systems than communicating the needs and challenges of flood management to the public.

Desired Outcome:

To improve the public's awareness of flood risk and explain what households and businesses can do to reduce or mitigate risk to acceptable levels. Property owners will be made aware of their flood risks and the requirements associated with the use, buying and selling of their property. Increase tribal groups awareness of the risk of flooding and notify them on the available assistance programs. Increased awareness may also help build political support for necessary flood management activities.

Methodology:

DWR could expand outreach programs to include public service announcements or workshops that increase public awareness of floodplain values, flooding hazards, public safety, and hazard mitigation measures. Notify property owners of the flood risks associated with living behind a flood protection structure. Develop an interactive web site that would allow users to access detailed flood hazard maps. There are opportunities for outreach activities using already established media outlets, such as newspapers, news broadcasts, social media, etc. Students from K-12 should be educated about flood risks as a mandatory part of their curriculum, including flood protection system, flood risks, levees, and even elementary planning concepts. There are also opportunities for coordination and sharing knowledge between State and local flood managers. Sharing knowledge can improve political support for funding, construction, new legislation and emergency preparedness and response.

CVFPP Goals

Contributes Significantly to: Improve Institutional Support

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☐ Improve Operation and Maintenance
- ☐ Promote Ecosystem Functions
- ☑ Improve Institutional Support
- ☐ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retain for further evaluation

Advantages:

- Potential to reduce flood damage, reduce floodplain development, and increase public safety.
- Well-informed public is more likely to support land use decisions consistent with floodplain function.
- Relatively low cost.

Disadvantages:

- Does not idrectly reduce flood risk.
- Local agencies may have trouble with funding.
- Flood information will not be consistent without region-wide coordination.
- Costs of implementing a new education program may be a burden to some schools.

Economic Considerations:

Capital Cost? (High, Medium, Low)

Low capital costs. Policy and Outreach MAs will tend to have a substantially lower capital cost than other MAs which involve physical construction. Example of capital investments include: Funding for training, education, and promoting awareness of flood risk among the public and those responsible for implementing floodplain management decisions.

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

Low to moderate costs depending on how often flood information is disseminated. Resources will need to be provided periodically for the State to conduct Community Assistant Visits (CAVs)and to reinstitute\ Community Assistance Contacts (CACs).

Potential for Cost-Sharing?

High potential for cost-sharing with local agencies, State, and federal agencies to increase public awareness of floodplain values, flooding hazards, public safety. Consequently, if the public and politicians see the value of emergency preparedness, then they will be more likely to support future flood management efforts.

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Potential to decrease emergency response and recovery costs. Better characterization of flood risk in communities could compel communities to flood-proof their infrastructure (both in new construction and by retrofitting existing structures) which would reduce potential damage and need for recovery.

Flood fighting? (Increase, Decrease, or No Significant Change)

No change. This MA contributes to increasing public awareness of flood risk, not to flood fighting coordination.

Effect on Damage to Critical Public Infrastructure?

No change. This MA contributes to increasing public awareness of flood risk, not reducing flood risk.

Effect on Floodplain and Economic Development?

No change.

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

Potential to reduce long-term State Flood Responsibility by increasing public awareness

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

None

Adverse Environmental Impact?

None

Permitting Considerations?

None

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

None

Social Considerations:

Public Safety?

This MA improves public safety by reducing the consequences of flooding. Improving and promoting flood education and awareness programs in communities could discourage communities from developing in floodplains. Often, the general public and politicians are not aware of the dangers of flooding, until an actual emergency occurs.

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

No potential.

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

High likelihood of implementation.

Technical Considerations:

Redirected Hydraulic Impacts?

No redirected hydraulic impacts.

Residual Risk?

Increasing public awareness has the potential to reduce the consequences of flooding, therefore reducing the residual risk.

Climate Change Adaptability:

This action is unrelated to hydrologic and biological adaptability.

Urban, Small Community, and Non-Urban Considerations:

Region specific (cannot determine at this time).

Regional Applicability:

All regions.

Integration with Other Programs:

NFIP Community Assistance Program (LRFMO), Annual Risk Notification (LRFMO), Implementing California Flood Legislation into Local Land Use Planning Handbook and associated public workshops (LRFMO)

References:

DRAFT Management Action Evaluation

Management Action Title: MA-075

Provide technical assistance to local agencies for compliance and grant application assistance.

Description:

Problem:

Many local agencies need assistance in pursuing Federal and State grants to mitigate flood risk. Local project not being implemented because of lack of knowledge about the available programs. Many State and federal agencies have funding sources to assist local jurisdictions with their flood risk issues . Within these agencies, there are multiple programs that locals are not completely familiar with. Providing a clear roadmap for the locals and assisting them through the process of identifying the best programs for their needs is a service that is not readily available at this time.

Desired Outcome:

Increase local jurisdiction participation and awareness of various State and Federal programs available. Increased participation and awareness in FEMA's Flood Mitigation Assistance (FMA) Program, FEMA's Pre-Disaster Mitigation grant program, and FEMA's Hazard Mitigation Grant Program. Stronger partnerships and participation with all levels of government to maximize resources in support of State and Federal programs.

Methodology:

Provide technical assistance to local agencies and practitioners to notify them of the availability of FMA grants and other Federal and State programs. FEMA's FMA Program was created with the goal of reducing or eliminating claims under the NFIP. FEMA provides FMA planning, project, and technical assistance grants to assist states and communities implement measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. In Fiscal Year 2009, $35,700,000 of funding was available for the FMA programs. California received $842,400 compared to the highest grant award of $5,193,300. Greater coordination at all levels of government to integrate programs at a local, State and Federal level. Since CalEMA oversees the program, DWR could enhance the partnership with CalEMA staff on publicizing the availability of the grants. This would allow DWR to enhance its awareness of the grants and disseminate grant information when applicable to its local partners.

CVFPP Goals

Contributes Significantly to: Improve Institutional Support

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☐ Improve Operation and Maintenance
- ☐ Promote Ecosystem Functions
- ☑ Improve Institutional Support
- ☐ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retain for further evaluation

Advantages:

- Providing assistance to localities for Federal grant (and other State grant, e.g., LLAP, FCP, YFFPP, etc.) applications can, if the grants are won, improve flood protection statewide on various levels while reducing the financial responsibility of the State.

Disadvantages:

- None.

Economic Considerations:

Capital Cost? (High, Medium, Low)

Low. Outreach MAs tend to have a substantially lower capital cost (need more staff to accomplish)than other MAs which

involve physical construction.

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

Potential to reduce O&M costs; FMA grants are used to support programs that reduce long-term risk for flood damages. Improvements to the flood control system may reduce O&M costs. May require initial cost outlay for more staff.

Potential for Cost-Sharing?

Cost sharing is central to this MA; State provides assistance to localities applying for Federal grant money. Definite cost sharing opportunities at the local, State and Federal levels.

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Potential to reduce emergency response and recovery costs. Increased technical assistance could improve compliance, floodplain management, land use decision making and ability to fund worthwhile projects. FMA grants are used to support programs that reduce long-term risk for flood damages (i.e., reducing frequency and/or consequences of flooding)

Flood fighting? (Increase, Decrease, or No Significant Change)

Potential to reduce flood fighting costs; FMA grants are used to support programs that reduce long-term risk for flood damages (i.e., reducing frequency and/or consequences of flooding)

Effect on Damage to Critical Public Infrastructure?

Potential to reduce risk to critical infrastructure; FMA grants (or other State and Federal grants) may be used develop protection measures for critical infrastructure elements.

Effect on Floodplain and Economic Development?

No change.

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

Potential to reduce long-term State Flood Responsibility if FMA grants (or other State and Federal grants)are used to improve the flood control system.

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

None

Adverse Environmental Impact?

None

Permitting Considerations?

None

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

None

Social Considerations:

Public Safety?

Potential to increase public safety if FMA grants (or other State and Federal grants) are won and used to improve flood control and prevention projects intended to improve public safety.

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

No potential.

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

High likelihood of implementation; minimal costs for the State to assist localities in grant applications with large potential

benefits

Technical Considerations:

Redirected Hydraulic Impacts?

No redirected hydraulic impacts.

Residual Risk?

No direct impact on residual risk.

Climate Change Adaptability:

This action is unrelated to hydrologic and biological adaptability.

Urban, Small Community, and Non-Urban Considerations:

No specific considerations identified.

Regional Applicability:

All regions.

Integration with Other Programs:

NFIP Community Assistance Program (LRFMO), LFPZ Parcel Database (LRFMO), Annual Risk Notification (LRFMO), Flood Projects Office (FPO), building codes, CRS, general flood risk planning.

References:

California Floodplain Management Task Force, 2002, Final Recommendations Report;

DRAFT Management Action Evaluation

Management Action Title: MA-076

Assist in development of local flood management plan updates.

Description:

Problem:

Legislation signed in 2007 included new requirements for providing flood protection to urban and urbanizing areas in the Central Valley. The flood legislation establishes protection from a 200-year flood event (flood with a 1-in-200 chance of occurring in any year) as the minimum level of flood protection to be provided in urban and urbanizing areas by 2025. The Legislature sets deadlines for cities and counties in the Central Valley to amend their general plans and zoning ordinances to conform to the CVFPP within 24 months and 36 months, respectively, of its adoption by the Board. Once the general plan and zoning ordinance amendments are enacted, the approval of development agreements and subdivision maps is subject to restrictions in flood hazard zones. Some local agencies are limited in their capacity to comply with new requirements and may require institutional and technical support from the State.

Desired Outcome:

Create integrated planning and permit methods for local entities to ensure compliance with the 2012 CVFPP, including General Plan updates, local flood management plan updates, regional general permitting, NCCPs, and HCPs.

Methodology:

Within 24 months of adoption of the CVFPP, the State would adopt and integrate standards for use by local governments to ensure they are in compliance with applicable provisions of the CVFPP during General Plan and other planning document updates, such as specific terminology and criteria, i.e. what is a 200 year flood event. Within 36 months of CVFPP adoption, the State would adopt and integrate standards for use by local governments to ensure they are in compliance with applicable provisions of the CVFPP when local zoning amendments are enacted.

CVFPP Goals

Contributes Significantly to: Improve Institutional Support

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☐ Improve Operation and Maintenance
- ☐ Promote Ecosystem Functions
- ☑ Improve Institutional Support
- ☐ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retained.

Advantages:

- Reduces flood risk.
- Discourages floodplain development.
- Establish consistency in planning policy.

Disadvantages:

- Some local agencies may require significant institutional and technical support.
- Rrequires large coordination efforts.
- 200-year flood protection may be unattainable for some areas, either for financial reasons, or site limitations, or possible environmental restrictions.

Economic Considerations:

Capital Cost? (High, Medium, Low)

No capital costs for standards development and plan amendments.

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

Little or no change to O&M costs for updating plans; secondary costs associated with new flood infrastructure could be high.

Potential for Cost-Sharing?

Potential for Federal cost sharing via contributions to existing Federal project purposes (flood management). Also potential for local cost sharing.

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Likely to reduce long-term costs for emergency response and recovery through reduction in flood risk.

Flood fighting? (Increase, Decrease, or No Significant Change)

Could decrease urgency and extent of floodfighting by limiting areas of highest potential losses, allowing some areas that would otherwise be a priority for flood fighting to be given low or no priority.

Effect on Damage to Critical Public Infrastructure?

Potential to reduce damage to critical public infrastructure through reduction in flood risk.

Effect on Floodplain and Economic Development?

Potential reduction in floodplain development in high-risk areas due to changes in zoning ordinances.

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

Potential to reduce State flood responsibility through reduction in flood risk.

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

Advanced mitigation planning and development of general permits could contribute to rehabilitation ecosystem functions by mitigating in advance of impacts, mitigating in large consolidated areas, and identifying the most suitable areas for habitat rehabilitation.

Adverse Environmental Impact?

None

Permitting Considerations?

None for development of plan updates; however, the plans will impact future permitting processes in the Central Valley

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

None

Social Considerations:

Public Safety?

Potential to increase safety through reduced flood risk.

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

Regulations and planning requirements have the potential to benefit water supply, water quality, ecosystem enhancement, recreation, and agricultural industry.

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

Implementation required by legislation.

Technical Considerations:

Redirected Hydraulic Impacts?

Measures associated with new planning requirements could shift flood flows onto downstream areas.

Residual Risk?

Potential to prevent increases in residual risk due to changes in zoning ordinances.

Climate Change Adaptability:

This action could enhance biological adaptability by increasing the ability of conservation actions to increase habitat extent, connectivity, complexity, and continuity across environmental gradients; and thus, enhance the ability of populations to handle and adjust to the consequences of climate change.

Urban, Small Community, and Non-Urban Considerations:

Region specific (cannot determine at this time).

Regional Applicability:

Applicable in all regions affected by legislation.

Integration with Other Programs:

Implementing California Flood Legislation into Local Land Use Planning Handbook for Local Communities (and associated public workshops)

References:

RCR

DRAFT Management Action Evaluation

Management Action Title: MA-077

Improve awareness of Community Rating System insurance-rate adjusting program.

Description:

Problem:

The Community Rating System (CRS) was created to encourage and recognize communities that engage in floodplain management activities that exceed minimum National Flood Insurance Program (NFIP) standards. Despite the reduction in flood insurance premiums offered to participating communities, only 14% of California communities (accounts for 55% of the NFIP policy base statewide) are participating in the CRS program. Communities lack staff and time to apply and maintain program requirements.

Desired Outcome:

To increase participation and existing CRS classifications in the CRS program.

Methodology:

DWR recently hired a CRS Program Coordinator who is creating a strategic plan with a national CRS expert. If additional information is needed, please contact Dave Rolph,drolph@water.ca.gov

CVFPP Goals

Contributes Significantly to: Improve Institutional Support

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☐ Improve Operation and Maintenance
- ☐ Promote Ecosystem Functions
- ☑ Improve Institutional Support
- ☐ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retained

Advantages:

- Encourages local communities to participate in the CRS program while their residents receive a reduction in NFIP insurance premiums.
- Residents also benefit from improved public safety and greater property protection.

Disadvantages:

- Initial coordination could be cumbersome and time consuming, but should not be problematic long term.

Economic Considerations:

Capital Cost? (High, Medium, Low)

Low, the only costs associated with this action would be the creation of a CRS Coordinator position at the State level and outreach and training costs to educate the public and local agencies about the advantages of participating in the CRS program.

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

Low

Potential for Cost-Sharing?

Potential for cost-sharing with local agencies that work with or receive assistance from the CRS Coordinator's office. Should also coordinate with FEMA.

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Decrease, encouraging more local entities to participate in the CRS program will decrease long-term flooding costs because the CRS communities will have better floodplain management programs.

Flood fighting? (Increase, Decrease, or No Significant Change)

NA

Effect on Damage to Critical Public Infrastructure?

Improves overall decisions on building new structures, including critical facilities.

Effect on Floodplain and Economic Development?

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

Requires stricter floodplain management, thereby decreasing flood risk losses and increasing public safety.

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

Could improve key physical and ecological functions through stricter requirements.

Adverse Environmental Impact?

None

Permitting Considerations?

Improves permitting process through stricter building requirements.

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

None

Social Considerations:

Public Safety?

CRS encourages better floodplain management, land use decisions, education and outreach within the community with the intent of increasing public safety. Participating in CRS by default increases the protection provided to communities because their flood protection will exceed what is necessary by NFIP standards.

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

CRS communities in general, incorporate open space preservation, retention basin, parks and rec. decisions into their floodplain management.

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

This action would be easy to implement. There are other State/local programs where coordination regarding education and outreach already occur and these could be used as a model. High, great support at the local, State and Federal level for the CRS program. Also high level of public support for this program.

Technical Considerations:

Redirected Hydraulic Impacts?

NA

Residual Risk?

CRS participation would reduce residual risk for participating communities because they would have increased flood protection.

Climate Change Adaptability:

Floodplain management considers the effects of climate change.

Urban, Small Community, and Non-Urban Considerations:

This would apply similarly to all community sizes and types, but less applicable in non-urban situations.

Regional Applicability:

All regions

Integration with Other Programs:

NFIP and Technical Support including the NFIP Community Rating System Program (LRFMO)

References:

California Floodplain Management Task Force, 2002, Final Recommendations Report; USACE 2001 Sacramento and San Joaquin River Basins Comprehensive Study; RCR;

DRAFT Management Action Evaluation

Management Action Title: MA-078

Develop mandatory flood insurance programs that are consistent with the risk of flooding.

Description:

Problem:

Under the current rules of the National Flood Insurance Program (NFIP), homes protected by levees certified by the USACE as providing one-percent chance event flood protection are not required to obtain flood insurance. For insurance purposes, these structures are considered to be outside the one-percent chance event floodplain. However, floodplain occupants situated behind levees are still exposed to a residual risk from flooding due to unforeseen factors such as poor construction, poor maintenance, undetected rodent activity, undetected geotechnical problems, or seismic events. Furthermore, while levees reduce the occurrence of flooding, they do not protect against the consequences of more severe floods. For example, a home built behind a levee designed to provide 100-year flood protection is at greater risk than a home built to the 100-year flood elevation. The home behind the levee could become completely inundated from a flood that exceeds 100-year levels.

Desired Outcome:

Develop a State sponsored insurance program so that those subject to residual flood risk are protected by flood insurance. Encourage property owners in all flood zones to carry flood insurance.

Methodology:

Create a flood hazard zone for areas behind credited levees, where Federal flood insurance would be mandatory and new buildings sited within the zone would pay actuarial based insurance rates. Encourage FEMA to establish a mandated flood insurance program for homes behind levees with preferred risk options and for structures protected from less than the 0.5% chance event floodplain. Graduate Federal flood insurance premiums according to a structure's level of flood risk rather than the structure's location. Additional information besides Flood Insurance Rate Maps (FIRMs) should be used for decision making. All public agencies not subject to local government floodplain management requirements or the Governor's Executive Order on Floodplain Management should comply with NFIP requirements. The State should consider developing a proposal to FEMA that would allow some relief from its policies, perhaps in the SPFCPA, in return for certain state assurances. This requires close coordination at Federal, State and local levels. Partnership with the Department of Insurance is needed.

CVFPP Goals

Contributes Significantly to: Improve Institutional Support

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☐ Improve Operation and Maintenance
- ☐ Promote Ecosystem Functions
- ☑ Improve Institutional Support
- ☐ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retained

Advantages:

- Increases public safety and reduces loss to property.
- Provides a more realistic assessment of flood risk.

Disadvantages:

- Coordination between Federal, State and local agencies can be problematic.
- Could also increase costs for some people in "new" areas of flood risk.
- There will be some public resistance to a mandatory program, especially by those in established neighborhoods that have not had to purchase flood insurance in the past.

Economic Considerations:

Capital Cost? (High, Medium, Low)

Variable, depending on the geographical extent of areas requiring flood insurance based on new flood risk zones.

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

NA

Potential for Cost-Sharing?

Potential for cost share with the State, possibly in areas that receive protection from SPFC facilities or Federal facilities for which the State has provided assurances.

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Decrease, recovery costs would be decreased because flood risk would be reevaluated based on protection provided for structures and not their physical location.

Flood fighting? (Increase, Decrease, or No Significant Change)

NA

Effect on Damage to Critical Public Infrastructure?

Depends on how many critical facilities are currently benefiting from some level of protection from levees.

Effect on Floodplain and Economic Development?

This could discourage floodplain development if insurance rates are changed to better reflect a structures flood risk. Would encourage better building standards behind levees and possibly limit construction in these areas depending on building regulations and insurance requirements

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

Potential to increase or decrease state flood responsibility if areas protected by the SPFC area amended due to changes in the way flood risk is evaluated. Dependent upon final regulations - needs further evaluation.

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

could affect physical and ecological functions.

Adverse Environmental Impact?

None

Permitting Considerations?

Permitting decisions would be impacted in areas behind levees.

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

None

Social Considerations:

Public Safety?

Improvements to public safety overall.

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

Potentially could impact decisions concerning open space, parks and rec. etc.

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

This could be difficult to implement. FEMA and the state would need to cooperate and possible change the way flood risk is

determined and the rates that should be paid for protection. This could also cause some people who were not previously considered in a flood risk area to now be required to buy flood insurance. Politically sensitive subject requiring high level coordination of Federal, State and local level. Similar proposal proposed at Federal level.

Technical Considerations:

Redirected Hydraulic Impacts?

NA

Residual Risk?

This should reduce residual risk by protecting homes at risk for flooding based on protection provided and not just their geographic location.

Climate Change Adaptability:

This action is unrelated to hydrologic and biological adaptability.

Urban, Small Community, and Non-Urban Considerations:

This would apply similarly to all community sizes and types.

Regional Applicability:

All regions

Integration with Other Programs:

Map Modernization Program (FEMA), Risk MAP Program (FEMA), Provisionally Accredited Levees Program (FEMA), NFIP and Technical Support (LRFMO)

References:

California Floodplain Management Task Force, 2002, Final Recommendations Report; USACE 2001 Sacramento and San Joaquin River Basins Comprehensive Study; Flood Warning: Responding to California's Flood Crisis.;

DRAFT Management Action Evaluation

Management Action Title: MA-079

Increase public understanding of FEMA maps and policies.

Description:

Problem:

Floodplain maps are often the main resources used by the public and decision makers to understand flood risks. Floodplain boundaries often change, pushing properties once thought to be outside a flood hazard area inside a special flood hazard area. Shifting properties in and out of floodplains sends conflicting messages to the public about flood risk and can undermine the credibility of floodplain maps in the eyes of the public. While the public's lack of flood awareness can be partially attributed to constantly evolving and confusing floodplain maps, the public also bears responsibility for underestimating the risks of flooding.

Desired Outcome:

Provide better flood risk education to the public regarding FEMA responsibilities and policies, how FEMA regulations affect their property, and how these policies relate to State programs.

Methodology:

Establish a collaborative, multi-agency technical committee to educate and engage the public and governmental agencies on achieving tolerable levels of flood risk. Work with FEMA/NFIP, other State and local agencies and governments on outreach, education and awareness programs.

CVFPP Goals

Contributes Significantly to: Improve Institutional Support

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☐ Improve Operation and Maintenance
- ☐ Promote Ecosystem Functions
- ☑ Improve Institutional Support
- ☐ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retained

Advantages:

• Improved flood risk understanding would go a long way to create goodwill and increase cooperation with FEMA and the State by landowners.

Disadvantages:

• There will be costs associated with public outreach and education.

Economic Considerations:

Capital Cost? (High, Medium, Low)

Low, the primary costs with this action would be outreach and education activities, to educate people about their flood risk and how FEMA maps are developed and used to assess their risk.

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

Low

Potential for Cost-Sharing?

Potential for cost share among agencies for outreach activities.

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Better education may contribute to decreased cost for emergency response and recovery.

Flood fighting? (Increase, Decrease, or No Significant Change)

NA

Effect on Damage to Critical Public Infrastructure?

Education on flood risk and justification for location of critical infrastructure could help alleviate economic impacts.

Effect on Floodplain and Economic Development?

Better education improves decision making (i.e., building in the floodplain and economic impacts).

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

Improved understanding of flood risk provides support for stronger floodplain management lessening damages and potentially the State's liability.

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

Could improve key physical and ecological functions.

Adverse Environmental Impact?

None

Permitting Considerations?

May positively impact the permitting process in communities.

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

None

Social Considerations:

Public Safety?

A better educated public can take action to improve their own safety.

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

Improved education provides foundation for property owners participating on committees etc., who are making land use decisions.

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

This action would be easy to implement because it would primarily involve education and outreach activities

Technical Considerations:

Redirected Hydraulic Impacts?

NA

Residual Risk?

Lowers potential of residual flood risk through education, outreach and awareness programs targeted at property owners.

Climate Change Adaptability:

Urban, Small Community, and Non-Urban Considerations:

This would apply similarly to all community sizes and types.

Regional Applicability:

All regions

Integration with Other Programs:

Should be integrated and coordinated with all other outreach, education and awareness programs at the Federal, State and local level, including NFIP Community Assistance Program (LRFMO)

References:

Flood Warning: Responding to California's Flood Crisis.;

DRAFT Management Action Evaluation

Management Action Title: MA-080

Eliminate subsidies for structures that are repetitively damaged.

Description:

Problem:

Desired Outcome:

To reduce flood insurance liability and reduce the loss of lives and property and tax burden to State and Federal taxpayers.

Methodology:

Terminate Federal flood insurance for property owners who have accumulated claim reimbursements equal to or greater than the value of the structure or require reimbursements to be used towards flood mitigation measures such as relocating, elevating structures, flood proofing, or demolition if the structure is repetitively or substantially damaged. This will require coordination with FEMA/NFIP and local communities to implement. We should also research and publicize the availability of FEMA grants that target the removal or elevation of "Repetitive Loss" structures, specifically the Severe Repetitive Loss, Flood Mitigation Assistance grants, and Repetitive Flood Claims Program.

CVFPP Goals

Contributes Significantly to: Improve Institutional Support

Potentially Contributes to (Check all that apply):

- ☑ Improve Flood Risk Management
- ☐ Improve Operation and Maintenance
- ☐ Promote Ecosystem Functions
- ☑ Improve Institutional Support
- ☐ Promote Multi-Benefit Projects

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retained

Advantages:

- Overall improved protection of lives and property over the long term.
- Money not spent on repetitively damaged structures can go to other programs and assistance.

Disadvantages:

- Not politically or publicly popular.

Economic Considerations:

Capital Cost? (High, Medium, Low)

Low/medium, this management action would save money by reducing the amount that can be paid for repetitively damaged structures by the NFIP but may require some funds for mitigation.

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

Initial annual cost would be greater in first few years until program was fully phased in and benefits realized.

Potential for Cost-Sharing?

Federal, State and local cost sharing opportunities.

Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)

Decrease, recovery costs would be decreased by this action. By limiting repetitive reimbursement for damages or forcing the use of repetitively damaged property reimbursements for relocation, etc. recovery costs will be reduced.

Flood fighting? (Increase, Decrease, or No Significant Change)

NA

Effect on Damage to Critical Public Infrastructure?

Presumably few critical facilities are qualifying repetitive loss structures.

Effect on Floodplain and Economic Development?

This could affect floodplain development by reducing the construction of structures that could be repetitively damaged due to flood risk.

Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)

Decreases State flood responsibility by decreasing number of repetitive loss structures.

Environmental Considerations:

Rehabilitate key physical processes and ecological functions?

None

Adverse Environmental Impact?

None

Permitting Considerations?

None

Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?

None

Social Considerations:

Public Safety?

Definite improvement to public safety. Improves permitting process through stricter building requirements and floodplain management standards.

Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?

Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?

There may be resistance to this action because many payees will resist moving their structure or the redirection of insurance payments to other flood management activities. This will require a major policy change to enact. This has already been proposed at the Federal level and is met with significant political challenges.

Technical Considerations:

Redirected Hydraulic Impacts?

NA

Residual Risk?

This should reduce residual risk by providing incentives to relocate structures out of areas of repeated inundation or high risk.

Climate Change Adaptability:

This action is unrelated to hydrologic and biological adaptability.

Urban, Small Community, and Non-Urban Considerations:

This would be more difficult to implement in smaller communities with less resources.

Regional Applicability:

All regions

Integration with Other Programs:

Beneficial to coordinate with other programs at the Federal, State and local levels.

References:

USACE 2001 Sacramento and San Joaquin River Basins Comprehensive Study; Uniform Hazard Mitigation Assistance, CalEMA's Hazard Mitigation Web Portal,www.calema.ca.gov.